**Project Title:** Bridge Waterproofing Details - Phase 2  

**PennDOT Technical Advisor:** Ronald Schreckengost  

**Project Duration:** April 2015 – June 2017

**Project Purposes:**

Project purposes are to:

The purpose of this project is to improve waterproofing design and practice to ensure that the bridges in Pennsylvania deliver high-quality performance during their expected lifespan. In addition to improving the safety margin and robustness of the key components, the project is aimed to develop sensoring systems to monitor the health of the substructure waterproofing system.

**Anticipated Outcomes:**

Anticipated project outcomes include:

- New structural design to resist water leakage at the abutment;
- Guidelines for the use of high-performance waterstop;
- Improved details to mitigate the delamination risk of waterproofing membrane;
- Experimental characterization of the serviceability of block-out material
- A sensoring system to monitor the movement of the expansion joint;
- A sensoring system to detect the water leakage at abutment

**Implementation Plan:**

Since project initiation, PennDOT’s existing bridge standard details have improved. A large portion of bridges in District 10 are integral abutment bridges, and deck joints have moved away from the ends of the bridge and are now at the ends of approach slabs. Implementation of project results is not desired at this time.

Project results were disseminated by posting the research project Final Report on the PennDOT Research Division website. Additionally, electronic copies of the Final Report were sent to all state DOT transportation libraries, PA Turnpike, and FHWA and other national repositories such as the National Transportation Library, National Technical Information Service, and the Transportation Research Board Library (TRID).

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<tr>
<th>Research Partner:</th>
<th>Principal Investigator:</th>
<th>Project Cost:</th>
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<tbody>
<tr>
<td>University of Pittsburgh</td>
<td>Qiang Yu</td>
<td>$170,681.89</td>
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